



# Distinguished Lecture Series



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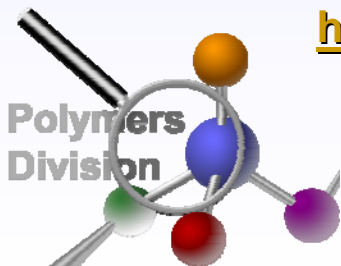
## ***Controlling the Assembly of Colloidal Building Blocks***

Colloidal aggregates with controllable sizes, shapes, and structures have been fabricated by dewetting aqueous dispersions of monodispersed colloidal spheres across surfaces patterned with two-dimensional arrays of templates. The capability and feasibility of this approach have been demonstrated with the organization of polymer latex or silica beads into homo-aggregates that include circular rings; polygonal and polyhedral clusters; and linear, zigzag, and spiral chains. It was also possible to generate hetero-aggregates in the configuration of HF and H<sub>2</sub>O molecules that contained colloidal spheres of different sizes, compositions, densities, functions, or a combination of these features. These uniform, well-defined aggregates of spherical colloids are ideal model systems to investigate the aerodynamic, hydrodynamic, and optical properties of colloidal particles characterized by nonspherical shapes and/or complex topologies. They can also serve as a novel class of building blocks to generate hierarchically self-assembled structures that are expected to exhibit interesting features valuable to areas ranging from condensed matter physics to photonics. In this talk, I will discuss the fundamental mechanism involved in this method, and its potential use in fabricating photonic devices.



**Thursday, April 26, 2007  
11 AM, Building 224, Room B-245**

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